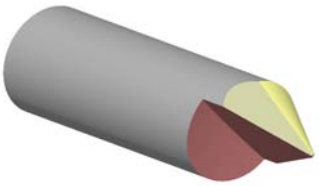
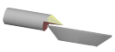
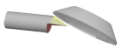
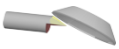
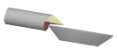
Engraving Tool Ø5 Z1

A18-010

The tool is ground from a solid cylindrical blank of Cermet.
The roughing operations on the tool are done with deep grinding (clearance and cutting edge). To optimize a sharp cutting edge, the finish is done with an oscillating machine axis.
The tool is programmed in "Advanced ISO". Totally 4 processes are needed to grind the complete tool. The 1st process removes the material for the cutting edge, the 2nd to get the back clearance, the 3rd to finish the clearance on the cutting edge and the last to finish the face of the cutting edge and to grind the tip of the tool.
2 different wheels are used: A 6A2 with grain size D46 for the roughing and a 6A2 wheel having a fine grain size (D6) in order to achieve a sharp, highly polished cutting edge.



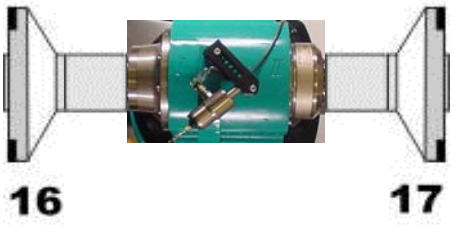
1. Cycletime for Production

Tool specifications Diameter 5 mm, Cutting edges 1, Length of cutting edge 7 mm Material CERMET					
Operations	 Probe	 ISO 1	 ISO 2	 ISO 3	 ISO 4
Feed [mm/Min]	2000	25	25	5	5
Power [kW]		1	1	1	1
Cutting feed [m/s]		18	18	25	25
Used wheels		 17	 17	 16	 16
Grinding time [s]	15	50	100	30	30
Total cycle time		3 Min 45			

The mentioned cycle times are indicative. The material to be ground, different grinding wheels or other coolants can influence the cycle times considerably.

2. Used Grinding Wheels

17 Ø150 6A2 D46
16 Ø150 6A2 MD6



3. Machine and Software Requirements

Machines:	5 axes CNC grinders : SIRIUS HPM
Control:	Fanuc 31i
Coolant:	Synthetic Oil, pressure 6 - 7 bar
Software:	Quinto 5

responsible engineer: KOC, 6.2.07

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